

## Sheet 7

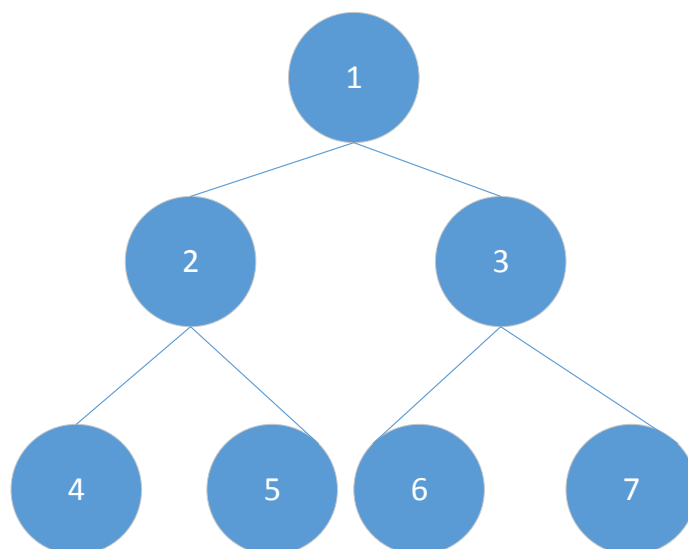
1. Write a C# program that calculates the maximum depth of a binary tree. The maximum depth is defined as the number of nodes along the longest path from the root node down to the farthest leaf node.

Implement the code that calculates the maximum depth as a separate function then write the code that test the function on a binary tree.

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2. Write a C# function that accept a binary tree root node and removes all the leaf nodes from the tree. Write a C# console program that demonstrate the operation of the function using the tree shown below by doing the following:

- Building the binary tree shown
- Print out the maximum depth of the tree using the function built in problem 1
- Execute the function to remove all the leaf nodes from the tree
- Reprint the maximum depth of the tree to show the new maximum depth value of the tree after removing all leaf nodes



3. Write three C# functions each accept a binary tree node and does according the following:

- The first function lists the values of the tree node in Pre-order sequence in printing out them on the screen
- The second function lists the values of the tree node in In-order sequence in printing out them on the screen
- The third function lists the values of the tree node in Post-order sequence in printing out them on the screen

Write a C# console program that demonstrate the operation of the tree function on the tree shown below

